

# Tiffany L. Carpenetti, Ph.D.

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## EDUCATION

### **Doctor of Philosophy, Entomology, July 2011**

Virginia Polytechnic Institute and State University, Blacksburg, VA

**Dissertation:** *Aedes aegypti* Heat Shock 70 Genes and their Inducible Promoters

Advisor: Dr. Zach Adelman

### **Bachelor of Science, Biological Sciences, May 2006**

Virginia Polytechnic Institute and State University, Blacksburg, VA

## RESEARCH INTERESTS

- Regulation of inducible promoters *in vitro* and *in vivo*
- Expression and regulation of mosquito *Hsp70* genes
- Mosquito stress response and hormone signaling
- Molecular basis of insecticide resistance

## RELATED EXPERIENCE

### ***Teaching***

Assistant Professor of Anatomy, Department of Biomedical Sciences, Edward Via College of Osteopathic Medicine – Virginia Campus, Blacksburg, VA  
December 2017 – present

- Course director for cardiopulmonary anatomy including development of lecture and laboratory materials, case studies, and exam questions
- Prosection for VCOM anatomy course as well as courses taught in conjunction with Virginia Tech
- Development of lecture and laboratory materials to supplement classroom instruction

Assistant Professor and Anatomy Lab Supervisor, Department of Biomedical Sciences, Edward Via College of Osteopathic Medicine – Virginia Campus, Blacksburg, VA  
August 2016 – December 2017

- Supervision and management of cadaver lab including procurement, maintenance, cremation, and return of donated specimens as well as ordering and maintaining supplies and instructional resources
- Prosection for VCOM anatomy course as well as courses taught in conjunction with Virginia Tech
- Development of lecture and laboratory materials to supplement classroom instruction

Instructor of Biology, Department of Biology, Radford University, Radford, VA  
August 2013 – May 2014

- Developed lecture materials and exams in addition to administering lab exercises for Biology for Health Sciences (Biology 105), Human Biology (Biology 104), and Environmental Biology (Biology 103)

Certified MCAT Instructor of Biology and Verbal Reasoning, The Princeton Review, Blacksburg VA

January 2013 – June 2014

- Instructed students in biology content and test taking strategies for the MCAT exam

Adjunct Instructor of Biology, Department of Biology, Radford University, Radford, VA August 2011 – August 2013

- Developed lecture materials, lab materials, and exams in addition to administering lab exercises for Biology for Health Sciences (Biology 105), Human Biology (Biology 104), and Microbiology (Biology 334)

### ***Advising***

Academic Advisor, Edward Via College of Osteopathic Medicine – Virginia Campus, Blacksburg, VA  
August 2017 – present

Graduate Degree Program Administrator, Macromolecular Science and Engineering, Virginia Tech, Blacksburg, VA

August 2015 – July 2016

- Assisted in development of graduate handbook, advised graduate students regarding plans of study and choosing an advisor, maintained student records database, administered assistantship contracts, assisted in development and dissemination of recruiting materials
- Received training in FERPA and ADA regarding students
- Skills:
  - Student Banner
  - Database management
  - Microsoft Office Suite
  - Hobsons Connect
  - Hokie Brand Ambassador

### ***Research***

Freelance Editor, December 2015 – present

- Responsible for editing scientific manuscripts on a freelance basis with Oxbridge Editing

Scientist, Strategic Vectors and Advanced Technologies, Intrexon, Blacksburg, VA June 2014 – March 2015

- Responsible for troubleshooting design and assembly of complex vector constructs
- Assisted in troubleshooting and streamlining production lab protocols
- Skills:

- Molecular cloning using cutting edge techniques
- Analysis of next generation sequencing information
- Development of protocols for high-throughput vector construction

Technical Science Writer, Cooperative Biological Engagement Program, Defense Threat Reduction Agency contracted with: Attimo Research and Development Group, Christiansburg, VA

April 2013 – May 2014

- Assisted in the development and editing of grant proposals and other documents for publication

Postdoctoral Research Associate, Department of Entomology, Virginia Tech, Blacksburg, VA

August 2011 – September 2012

- Performed tissue-specific qPCR investigations of changes in *Aedes aegypti* gene expression as a result of exposure to a range of hormones at varying concentrations
- Designed and constructed Baculovirus expression systems for the investigation of proteins implicated in mosquito insecticide tolerance
- Mentored undergraduate and graduate members of the Insect Toxicology Lab
- Skills:
  - Molecular cloning
  - Baculovirus expression systems
  - In vitro toxicological assays
  - Quantitative real-time PCR
  - Mosquito hormone modulation
  - Mosquito rearing and dissection
  - Laboratory management

Graduate Research Assistant, Department of Entomology, Virginia Tech, Blacksburg, VA August 2006 – July 2012

- Developed dissertation research, supervised and advised undergraduate lab members
- Skills:
  - Mosquito rearing and dissection
  - Molecular cloning
  - Transgenic insect development
  - Microinjection
  - Luciferase assays
  - Insect cell culture and transfection
  - Northern and Southern analysis with radiolabeled probes
  - Real-time PCR assays

Undergraduate Research Assistant, Department of Entomology, Virginia Tech, Blacksburg, VA September 2005 – May 2006

- Maintained mosquito colonies and assisted in the construction of plasmids for the development of transgenic insects
- Skills:
  - Mosquito rearing
  - DNA and RNA preparation
  - PCR, RT-PCR

- Molecular cloning
- *In vitro* transcription

Laboratory Technician, TechLab, Blacksburg, VA

May 2005 – May 2006

- Worked as a glassware technician and research assistant in both production and R&D
- Skills:
  - DNA extraction for pathogen characterization
  - Maintenance of stock cultures of anaerobic bacteria
  - ELISA reagent manufacturing
  - SOP development

## GRANTS

2013 Radford University College of Science and Technology Faculty Research Grant Award

- Award Amount: \$9,850
- Project Title: “Effect of varying water quality on life history traits and induction of biochemical stress markers in *Aedes aegypti* (Diptera: Culicidae)”
- Investigation of changes in development time, fecundity, and expression of *Hsp70* genes as a result of development in and/or exposure to water samples of varying water quality collected around Radford University

## PUBLICATIONS

Simon, RB, **Carpenetti, TL** (2016) Zika virus: Facing a new threat. *Nursing* **46 (8)**: 24-31.

Wong, DM, Li, J, Chen, Q, Han, Q, Muntunga, JM, Wysinski, A, Anderson, TD, Ding, H, **Carpenetti, TL**, Verma, A, Islam, R, Paulson, SL, Lam, PC---H, Totrov, M, Bloomquist, JR, Carlier, PR (2012) Select small core structure carbamates exhibit high contact toxicity to “carbamate---resistant” strain malaria mosquitoes, *Anopheles gambiae* (Akron). *PLoS One* **7 (10)**: e46712.

**Carpenetti, TLG**, Aryan, A, Myles, KM and Adelman, ZN (2012) Robust heat---inducible expression by two endogenous *hsp70*---derived promoters in transgenic *Aedes aegypti*. *Insect Mol Biol* **21**: 97- 106.

Anderson, MAE, **Gross, TL**, Myles, KM and Adelman, ZN (2010) Validation of novel promoter sequences derived from two endogenous ubiquitin genes in transgenic *Aedes aegypti*. *Insect Mol Biol* **19**: 441-449.

**Gross, TL**, Myles, KM and Adelman, ZN (2009) Identification and characterization of *heat shock 70* genes in *Aedes aegypti* (Diptera: Culicidae). *J Med Entomol* **46**: 496-504.

## ABSTRACTS/PRESENTATIONS

**Carpenetti, TLG**, Adelman, ZN. Robust heat---inducible expression by two endogenous *hsp---70* derived promoters in transgenic *Aedes aegypti*. Invited oral presentation given at: The 2<sup>nd</sup> Virginia Tech Symposium on Vector Borne Disease Research; 2012 March 10; Blacksburg, VA.

**Gross, TL**, Myles, KM, Adelman, ZN. Characterization of endogenous *hsp70* based inducible

promoters in *Aedes aegypti* embryos. Poster session presented at: 59<sup>th</sup> Annual Meeting, American Society of Tropical Medicine and Hygiene; 2010 Nov 5; Atlanta, GA.

**Gross, TL**, Adelman, ZN. Characterization of the structure and expression of *Aedes aegypti* *Hsp70* genes. Poster session presented at: 5th International Workshop on Insect Transgenesis and Genomics; 2008 Jun 15---19; Pacific Grove, CA.

**Gross, TL**, Adelman, ZN. Characterization of the structure and expression of *Aedes aegypti* *Hsp70* genes. Poster session presented at: Dean's Forum on Infectious Diseases; 2008 Sep 28---29; Blacksburg, VA.